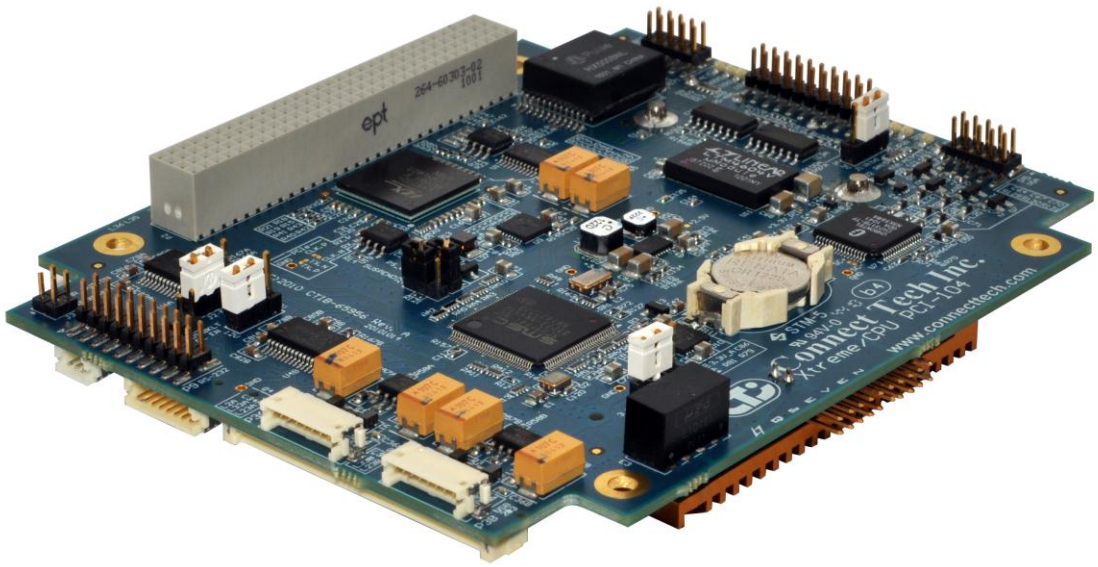
Connect Tech Inc.

Xtreme/SBC PCI-104 Single Board Computer & PCI-104 Qseven Carrier Board

User Manual



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Customer Support Overview

If you experience difficulties after reading the manual and/or using the product, contact the Connect Tech reseller from which you purchased the product. In most cases the reseller can help you with product installation and difficulties.

In the event that the reseller is unable to resolve your problem, our highly qualified support staff can assist you. Our support section is available 24 hours a day, 7 days a week on our website at: www.connecttech.com/sub/support/support.asp. See the contact information section below for more information on how to contact us directly. Our technical support is always free.

Contact Information

We offer three ways for you to contact us:

Mail/Courier
You may contact us by letter at:
Connect Tech Inc.
Technical Support
42 Arrow Road
Guelph, Ontario
Canada N1K 1S6

Email/Internet
You may contact us through the Internet. Our email and URL addresses on the Internet are:

sales@connecttech.com
support@connecttech.com
www.connecttech.com

Note:
Please go to the **Download Zone** or the **Knowledge Database** in the **Support Center** on the Connect Tech website for product manuals, installation guides, device driver software and technical tips. Submit your technical support questions to our customer support engineers via the **Support Center** on the Connect Tech website.

Telephone/Facsimile
Technical Support representatives are ready to answer your call Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time. Our numbers for calls are:

Toll Free: 800-426-8979 (North America only)
Telephone: 519-836-1291 (Live assistance available 8:30 a.m. to 5:00 p.m. EST, Monday to Friday)
Facsimile: 519-836-4878 (on-line 24 hours)

Limited Lifetime Warranty

Connect Tech Inc. provides a Lifetime Warranty for all Connect Tech Inc. products. Should this product, in Connect Tech Inc.'s opinion, fail to be in good working order during the warranty period, Connect Tech Inc. will, at its option, repair or replace this product at no charge, provided that the product has not been subjected to abuse, misuse, accident, disaster or non-Connect Tech Inc. authorized modification or repair.

You may obtain warranty service by delivering this product to an authorized Connect Tech Inc. business partner or to Connect Tech Inc. along with proof of purchase. Product returned to Connect Tech Inc. must be pre-authorized by Connect Tech Inc. with an RMA (Return Material Authorization) number marked on the outside of the package and sent prepaid, insured and packaged for safe shipment. Connect Tech Inc. will return this product by prepaid ground shipment service.

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Revision History

Revision 0.00 – January 10, 2011
Revision 0.01 – March 4, 2011
Revision 0.02 – May 31, 2012
Revision 0.03 – February 22, 2013

Introduction

Xtreme/SBC PCI-104 Single Board Computer

Connect Tech's Xtreme/SBC PCI-104 Single Board Computers offer a variety of embedded processor options including Intel Atom, Freescale i.MX51, TI OMAP and NVIDIA Tegra.

Xtreme/SBC solutions are modular and completely scalable, with access to current embedded processors that are easily upgradable to accommodate future generations of Intel Atom processors, such as Intel Atom E6xx, or ARM based processors, such as Cortex A8.

The on-board connectors of our Xtreme/SBC products provide access to SATA, USB, Ethernet, LVDS and VGA Video, and RS-232 & RS-422/485.

To learn more about Connect Tech's Xtreme/SBC PCI-104, visit http://www.connecttech.com/sbc.

PCI-104 Qseven Carrier Board

Connect Tech's PCIe/104 Qseven Carrier Board solutions are small embedded carrier boards that allow complete integration with industry standard Qseven modules. Using any off-the-shelf Qseven module provides a variety of embedded processor options including Intel Atom, Freescale i.MX51, TI OMAP and NVIDIA Tegra. This modular approach easily accommodates future generations of Intel Atom processors, such as Intel Atom E6xx, or ARM based processors, such as Cortex A8. The on-board connectors of our Qseven products provide easy access to SATA, USB, Ethernet, LVDS and VGA Video, and RS-232 & RS-422/485.

What is Qseven?

Qseven is an off-the-shelf, multi-vendor, Computer-on-Module that integrates the core components of a common PC, and mounts onto an application specific carrier board. Qseven modules have a standardized form factor of 70mm x 70mm and specify a PCIe style edge connector which interfaces to a low cost, high performance MXM socket on the carrier board. This single ruggedized MXM connection provides all the Qseven interfaces including: graphics, audio, mass storage, network, and multiple USB ports.

To learn more about Connect Tech's Xtreme/SBC PCI-104, visit http://www.connecttech.com/qseven

Features

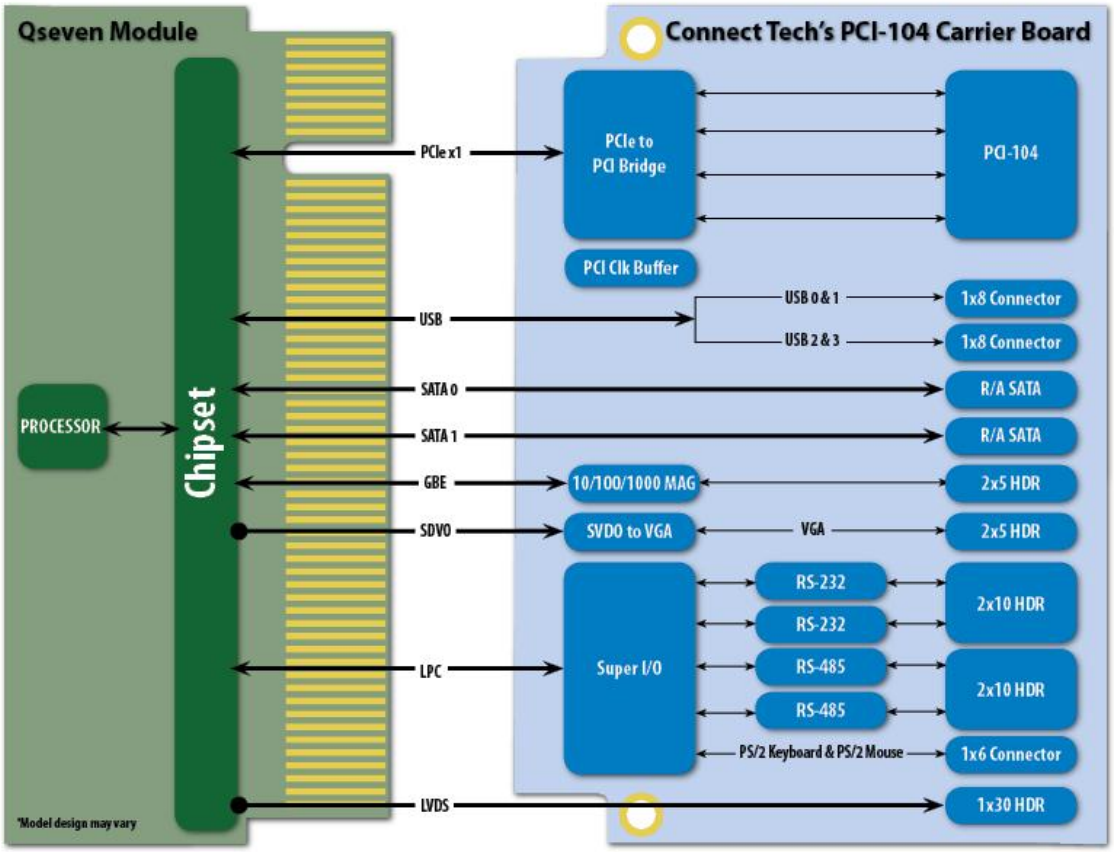
- Qseven module carrier
- PCI-104 form factor
- Support for up to 4 PCI-104 Devices
- Dual display, VGA (via SDVO) and 1x24 LVDS
- 2x SATA
- 2x RS232
- 2x RS485
- 1x 10/100/1000 Ethernet
- ATX power input or +5V/+12V only operation

System Block Diagram

The Qseven module implements the core processing features including: processor, memory, and system physical interfaces via the southbridge.

Many of the Qseven modules are based on the mobile Intel Atom architecture (Z series processor + Poulsbo / SCH US15W chipset); shown in the block diagram below.

This document will generally refer to the features of the US15W.

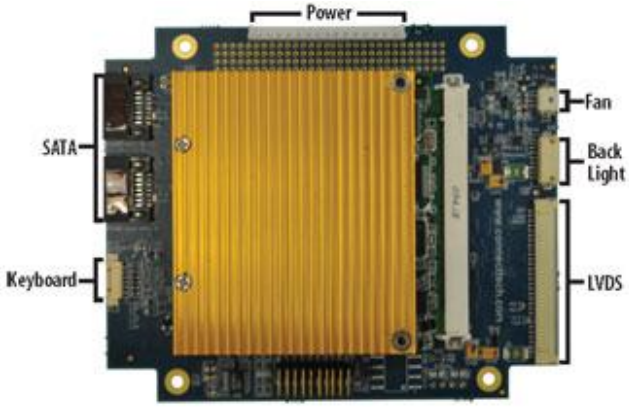


Hardware Description

Connector Locations

Xtreme/SBC PCI-104 – Top

Xtreme/SBC PCI-104 – Bottom



Connector Summary

Location	Connection
P1	Q7
P2	PCI-104
P3A, P3B	USB
P4	GBE
P5	VGA
P6	ATX Power
P7	LVDS Video
P8	LVDS Backlight
P9	RS232 serial
P10A, P10B	SATA
P11	RS485 serial
P12	PCI-104
P13	PS/2 Keyboard & Mouse
P14	Fan Power
P16	Battery holder

Jumper Summary

Jumper	Function
J1	PS/2 power
J2	Fan Power
J3	Fan PWM polarity
J4	LVDS panel power
J5	LVDS backlight enable polarity
J6	LVDS Backlight Power
J7	Suspend Selection
J8	Power Supply On
J9	Power Button

Qseven Module Interface

Description

The processor and Chipset are implemented on the Qseven CPU module, which connects to the Xtreme/SBC PCI-104 via a MXM connector. As previously mentioned, many of the existing Qseven Modules use the Intel Atom mobile architecture, Z series processor + Poulsbo / SCH US15W chipset. The Xtreme/SBC PCI-104 implements a subset of the Qseven features, as describe in the introduction.

For a list of Qseven module vendors, visit http://www.qseven-standard.org/

Connector

Function	**Qseven interface**
Location	P1
Type	MXM Foxconn AS0B326-S78N-7F (or equivalent)
Pinout	Refer to Qseven specification

Graphics

The availability of the graphics interfaces depends on the Qseven module selected.

US15W: The US15W chipset provides GMA 500 graphics sub-system and provides two display interfaces: SDVO (serial digital video output) and LVDS (low voltage differential signalling). The resolution is generated by the by GMA 500 is limited 1280x1024.

The configuration of either interface as the primary or secondary display depends on the Qseven module's BIOS capabilities and settings. Refer to the Qseven module's documentation for more details.

VGA

Description

The VGA interface is implemented using the Qseven SDVO interface, with a SDVO to VGA converter (Chrontel CH7317B) which supports resolutions up to 1920x1200; however actually resolutions depend on the Qseven module.

Connector

Function	**VGA graphics**
Location	P5
Type	2x5 2mm header MLE TSHSM-205-D-06-G-V-L (or equivalent)
Pinout	

Pin	Signal	Pin	Signal
1	DAC_RED	2	GND
3	DAC_GREEN	4	N/C
5	DAC_BLUE	6	SC_DDC
7	HSYNC	8	SD_DDC
9	VSYNC	10	GND

LVDS

Description

The Xtreme/SBC PCI-104 provides dual 18 or 24 bit LVDS display channels via P7, which are connected directly from the Qseven module . LVDS panel supply power is selected with jumper J4 and backlight power is selected with jumper J6. Both are current limited to 500 mA.

US15W: The US15W provides only a single 18 or 24 bit display channel. Each LVDS data pair carries two bits, each channel has four data pairs.

Connectors & Jumpers

Function	**LVDS Graphics**
Location	P7
Type	Hirose DF14-30P-1.25H connector

Pinout

Pin	Signal	Description
1	VCC_PNL	Panel Power
2	VCC_PNL	Panel Power
3	GND	Digital ground
4	GND	Digital ground
5	LVDS_A3_N	Channel A Data
6	LVDS_A3_P	Channel A Data
7	LVDS_CLK_N	Channel A Clock
8	LVDS_ACLK_P	Channel A Clock
9	GND	Digital ground
10	LVDS_A2_N	Channel A Data
11	LVDS_A2_P	Channel A Data
12	LVDS_A1_N	Channel A Data
13	LVDS_A1_P	Channel A Data
14	LVDS_A0_N	Channel A Data
15	LVDS_A0_P	Channel A Data
16	GND	Digital ground
17	LVDS_B3_N	Channel B Data
18	LVDS_B3_P	Channel B Data
19	LVDS_BCLK_N	Channel B Clock
20	LVDS_BCLK_P	Channel B Clock
21	GND	Digital ground
22	LVDS_B2_N	Channel B Data
23	LVDS_B2_P	Channel B Data
24	LVDS_B1_N	Channel B Data
25	LVDS_B1_P	Channel B Data
26	LVDS_B0_N	Channel B Data
27	LVDS_B0_P	Channel B Data
28	GND	Digital ground
29	LVDS_DID_CLK	Display ID Clock (3.3V)
30	LVDS_DID_DATA	Display ID Data (3.3V)

Function	**LVDS backlight power**
Location	P8
Type	Hirose DF13-8P-1.25H connector
Pinout	

Pin	Signal	Description
1	+12V	+12 V DC, max. 1A
2	+12V	+12 V DC, max. 1A
3	+5V	+5 V DC, max. 1A
4	+5V	+5 V DC, max. 1A
5	LVDS_BLEN	Backlight enable, level selected with J4
6	VCC_BKL	Back light power, selected with J6
7	GND	Digital ground
8	GND	Digital ground

Function	**LVDS backlight power select** Selects either +12V or +5V. Refer to the display panel's documentation for proper configuration.
Location	J6
Type	1x3 0.100" jumper block
Pinout	

Position	Description
1-2	+12V
2-3	+5V
off	floating

Default	+12V

Function	**LVDS panel power select** Selects either +3.3V or +5V. Refer to the display documentation for proper configuration.
Location	J4
Type	1x3 0.100" jumper block
Pinout	

Position	Description
1-2	+3.3V
2-3	+5V
off	floating

Default	+3.3V

<table>
<tr><td>Function</td><td>LVDS backlight enable polarity
Selects either positive or negative. Refer to the inverter power supply documentation for proper configuration.</td><td rowspan="4">
</td></tr>
<tr><td>Location</td><td>J5</td></tr>
<tr><td>Type</td><td>1x2 2mm jumper block</td></tr>
<tr><td>Pinout</td><td><table><tr><th>Position</th><th>Description</th></tr><tr><td>off</td><td>Positive polarity</td></tr><tr><td>on</td><td>Negative polarity</td></tr></table></td></tr>
<tr><td>Default</td><td>Positive polarity</td></tr>
</table>

Gigabit Ethernet

Description

The gigabit Ethernet interface's controller (MAC + PHY) is implemented on the Qseven module, while the Xtreme/SBC PCI-104 provides the necessary magnetics and termination.

Most Qseven modules support 1000BASE-T, 100BASE-TX, and 10BASE-T standards with either a Realtek 8111 or Intel 82574 PCIe Ethernet controller.

Connector & LEDs

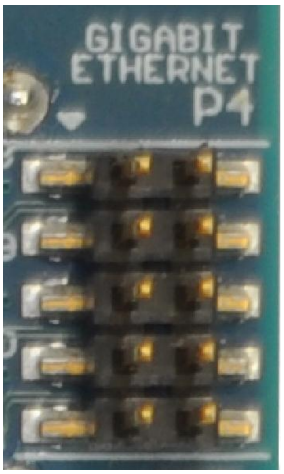
Function: **Gigabit Ethernet**

Location: P8

Type: 2x5 2mm header
MLE TSHSM-205-D-06-G-V-L (or equivalent)

Pinout

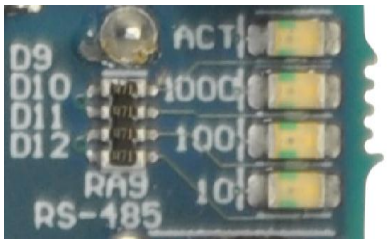
Pin	Signal	Description	Pin	Signal	Description
1	MX1-	Data	2	MX1+	Data
3	MX2-	Data	4	MX2+	Data
5	FGND	Frame Ground	6	FGND	Frame Ground
7	MX3-	Data	8	MX3+	Data
9	MX4-	Data	10	MX4+	Data



Function: **Ethernet Status LEDs**

Locations

Pin	Signal
D9	Activity
D10	1000BASE-T Link
D11	100BASE-TX Link
D12	10BASE-T Link



USB 2.0

Description

The Xtreme/SBC PCI-104 implements 4 of the 8 available USB 2.0 connections via two connectors. Over current protection and power supply filtering is provided.

Only the USB host features of the Qseven specification have been implemented, USB client features are not supported.

Connector

Function	**USB 2.0 x2**
Locations	P3A, P3B
Type	Hirose DF13-8P
Pinout	

Pin	Signal	Description
1	VCC_USB_0	Port 0 Filtered +5V
2	USB_0_N	Port 0 Data
3	USB_0_P	Port 0 Data
4	USB_GND_0	Port 0 Filtered Digital Ground
5	USB_GND_1	Port 1 Filtered Digital Ground
6	USB_1_N	Port 1 Data
7	USB_1_N	Port 1 Data
8	VCC_USB_1	Port 1 Filtered +5V

SATA

Description

The Xtreme/SBC PCI-104 provides 2 SATA host connections.

US15W: Most Qseven modules based on the US15W, convert the US15W's IDE interface to one SATA connection (as IDE master) and one built-in NAND based flash drive (as IDE slave). Consult the Qseven module's documentation for more information.

In this case only P10A connector is active

Connector & LEDs

Function	**SATA host**	
Locations	P10A, P10B	
Type	Industry standard right angle sata host connector Molex 0470804005 (or equivalent)	
Pinout		

Pin	Signal
1	GND
2	SATA_TX_P
3	SATA_TX_N
4	GND
5	SATA_RX_N
6	SATA_RX_P
7	GND

Function	**SATA Status LEDs**	
Locations		

Pin	Signal
D13	Activity

PCI-104

Description

The Xtreme/SBC PCI-104 allows up to 4 PCI-104 add-on boards to be installed in a "stack up" configuration. The PCI-104 connected through a PCIe to PCI bridge which is attached the first x1 PCIe lane of the Qseven connector.

Note: The Xtreme/SBC PCI-104 provides 3.3V generated from the +5V input power. The entire +3.3V rail on the PCI-104 stack is limited to 4A.

Connectors

Function	**PCI-104 (Top Stacking Only)**
Locations	P2
Type	Industry standard EPT 264-60303-02
Pinout	(A1 @ Bottom Left Corner)

Pin	A	B	C	D
1	GND	Reserved	+5	AD00
2	VI/O	AD02	AD01	+5V
3	AD05	GND	AD04	AD03
4	C/BE0#	AD07	GND	AD06
5	GND	AD09	AD08	GND
6	AD11	VI/O	AD10	M66EN
7	AD14	AD13	GND	AD12
8	+3.3V	C/BE1#	AD15	+3.3V
9	SERR#	GND	Reserved	PAR
10	GND	PERR#	+3.3V	Reserved
11	STOP#	+3.3V	LOCK#	GND
12	+3.3V	TRDY#	GND	DEVSEL#
13	FRAME#	GND	IRDY#	+3.3V
14	GND	AD16	+3.3V	C/BE2#
15	AD18	+3.3V	AD17	GND
16	AD21	AD20	GND	AD19
17	+3.3V	AD23	AD22	+3.3V
18	IDSEL0	GND	IDSEL1	IDSEL2
19	AD24	C/BE3#	VI/O	IDSEL3
20	GND	AD26	AD25	GND
21	AD29	+5V	AD28	AD27
22	+5V	AD30	GND	AD31
23	REQ0#	GND	REQ1#	VI/O
24	GND	REQ2#	+5V	GNT0#
25	GNT1#	VI/O	GNT2#	GND
26	+5V	CLK0	GND	CLK1
27	CLK2	+5V	CLK3	GND
28	GND	INTD#	+5V	RST#
29	+12V	INTA#	INTB#	INTC#
30	-12V	REQ3#	GNT3#	GND

LPC Super I/O

The Xtreme/SBC PCI-104 implements many low speed legacy I/O features with the SMSC SCH3114 Super I/O, which is connected to the Qseven module via the LPC (Low Pin Count) bus. This Super I/O device provides 4 serial ports, 2 PS/2, and many other status / control features.

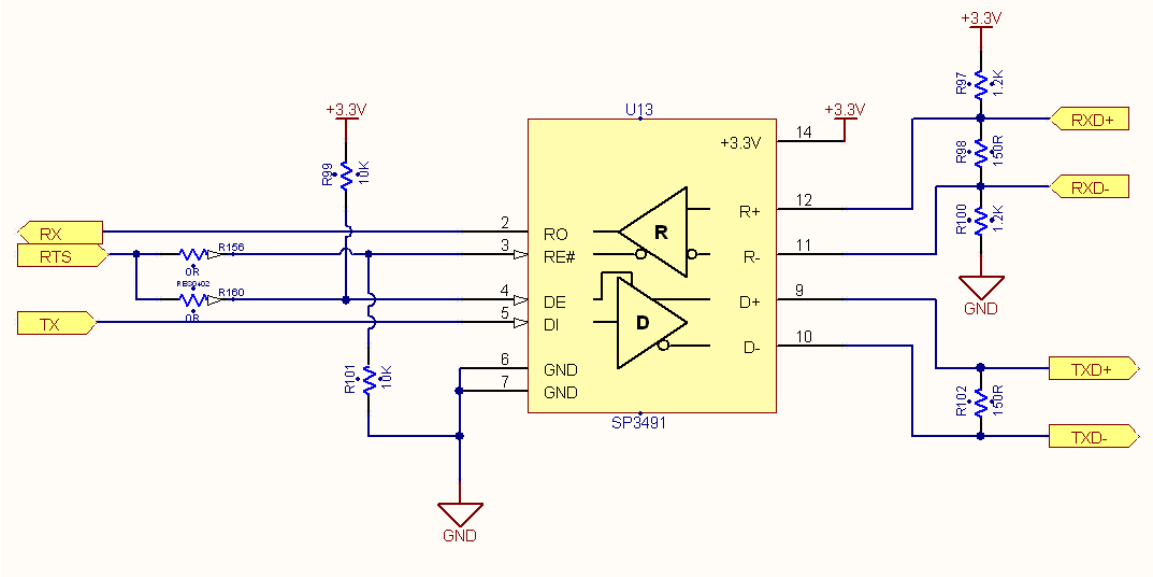
Note: the Qseven specification states that all Qseven modules BIOS implementations must support either the Winbond W83627 or SMSC SCH3114.

Serial

Description

Two RS232 serial ports are provided on P9 and two RS485 serial ports are provided on P11.

For the RS485 ports, the default configuration is full duplex without any bias or termination. Various resistors configurations can be populated to enabled TX and RX termination as well as RTS control. The following diagram shows the available configuration options. Contact Connect Tech's support department for further information.

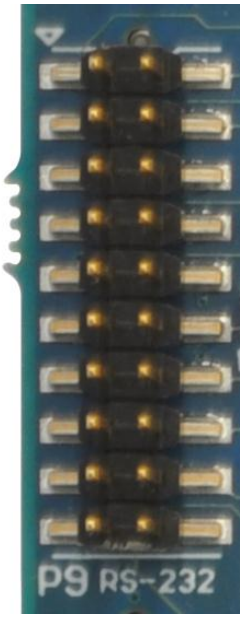


Resistor	Function	Default
R99	Always enable driver	Populated
R101	Always enable receiver	Populated
R156	RTS controlled receiver	
R160	RTS controlled driver	
R98	Receiver termination	
R102	Driver termination	
R100	Receiver bias	
R97	Receiver bias	

Connectors

Function	**RS232 x2**
Locations	P9
Type	2x10 2mm header
Pinout	

Pin	Signal	Pin	Signal
1	DCD1	2	DSR1
3	RXD1	4	RTS1
5	TXD1	6	CTS1
7	DTR1	8	RI1
9	GND	10	N/C
11	DCD2	12	DSR2
13	RXD2	14	RTS2
15	TXD2	16	CTS2
17	DTR2	18	RI2
19	GND	20	N/C



Function	**RS485 x2**
Locations	P11
Type	2x10 2mm header
Pinout	

Pin	Signal	Pin	Signal
1	RXD0+	2	N/C
3	TXD0+	4	N/C
5	TXD0-	6	N/C
7	RXD0-	8	N/C
9	GND	10	N/C
11	RXD1+	12	N/C
13	TXD1+	14	N/C
15	TXD1-	16	N/C
17	TXD1-	18	N/C
19	GND	20	N/C

PS/2 Keyboard and Mouse

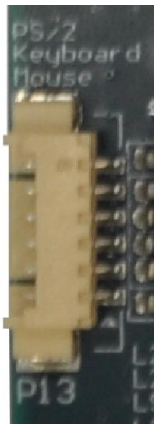
Description

A PS/2 keyboard and PS/2 mouse interface are provided via P13; where the PS/2 voltage is selectable with J1. Refer to the specification printed on the bottom of the keyboard and mouse to determine which voltage to select; in most cases this is 5V.

Connectors & Jumpers

Function	**PS/2 Keyboard and Mouse**
Locations	P13
Type	Molex 0532610671 connector
Pinout	

Pin	Signal	Description
1	KDAT	Keyboard Data
2	KCLK	Keyboard Clock
3	PS2_GND	Filtered digital ground
4	PS2_VCC	Filtered PS/2 supply voltage, via J1
5	MDAT	Mouse Data
6	MCLK	Mouse Clock



Function	**PS/2 voltage select** Selects either +3.3Vauxiliary or +5V auxiliary.
Location	J1
Type	1x3 0.1" jumper
Pinout	

Position	Description
1-2	+3.3V_A
2-3	+5V_A
off	floating

Default	+3.3V

Power

Description

The Xtreme/SBC PCI-104 is designed to be powered from an ATX type power supply, and support many of the ACPI features like suspend to RAM. A CR1225 battery holder (P16) provides the VBAT for the Qseven module.

The Xtreme/SBC PCI-104 generates 3.3V on board, to facilitate alternate powering options.

WARNING: If using a PCI-104 power supply that supplies voltages to the Xtreme/SBC PCI-104 through the PCI-104 connector, you must ensure this power supply DOES NOT supply +3.3V (as this would conflict with the onboard +3.3V).

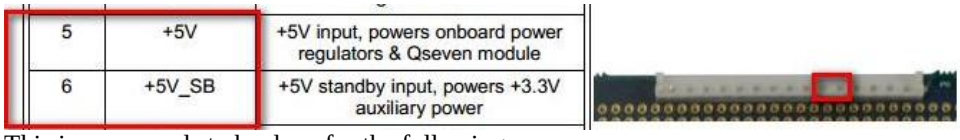
Other powering options include
A) +5V & +12V only: The ATX features can be bypassed by powering +5V_SB with same 5 volt supply as the +5V input pins.

B) +5V only: similar to the above cause, but excluding the +12V which is used only by the backlight and PCI-104 connector. Before attempting this, verify that this configuration is appropriate for the target installation.

Using a PCI-104 Power Supply (Providing Power Through the PCI-104 Bus Connector)

When using a PCI-104 Power Supply that provides power over the PCI-104 bus connector ensure the following:

- The PCI-104 Power Supply should ONLY provide +5V and/or +12V power rails. NOT +3.3V as mentioned above.
- Install a standard 0.1" pitch jumper on pins 5&6 of the QCG002's ATX power supply connector as shown below. This will connect the +5V rail to the +5V-SB rail.



This jumper needs to be done for the following reasons:
  - Some Qseven modules require +5V-SB in order to boot properly
  - The QCG002 SuperIO chipset requires +5V-SB to operate properly

Recommended Connect Tech Power Supplies

Xtreme/PSU – details here
  - PN: PSG003 (PCI-104 Bus Connector Installed)
  - PN: PSG006 (No Bus Connectors Installed)

Xtreme/PSU Isolated – details here
  - PN: PXG109 (PCI-104 Bus Connector Installed)
  - PN: PXG112 (No Bus Connectors Installed)
  - PN: PXG309 (PCI-104 Bus Connector Installed – High Voltage Input)
  - PN: PXG312 (No Bus Connectors Installed – High Voltage Input)

Connectors & Jumpers

Function	**ATX input power**
Location	P6
Type	JST B15B-EH-A

Pinout

Pin	Signal	Description
1	+5V	+5V input, powers onboard power regulators & Qseven module
2	GND	Digital Ground
3	+5V	+5V input, powers onboard power regulators & Qseven module
4	GND	Digital Ground
5	+5V	+5V input, powers onboard power regulators & Qseven module
6	+5V_SB	+5V standby input, powers +3.3V auxiliary power
7	GND	Digital Ground
8	PSON#	Power Supply On
9	PWROK	Power OK
10	+3.3V	+3.3V input, not used by Xtreme/SBC PCI-104. +3.3V is derived on internally
11	GND	Digital Ground
12	+12V	+12V input, used by PCI-104 and backlight
13	+12V	+12V input, used by PCI-104 and backlight
14	GND	Digital Ground
15	-12V	-12V input, not used

Function	**Suspend Selection** Selects either S3 or S5.
Location	J7
Type	1x3 2 mm

Pinout

Position	Description
1-2	Suspend S3
2-3	Suspend S5
off	Floating

Default	S3

Function	**Power Supply on** Selects either PS_ON# signal from Qseven module or always on	
Location	J8	
Type	1x3 2mm	
Pinout	<table><tr><th>Position</th><th>Description</th></tr><tr><td>1-2</td><td>Always on</td></tr><tr><td>2-3</td><td>Qseven PS_ON#</td></tr><tr><td>off</td><td>floating</td></tr></table>	
Default	Qseven PS_ON#	

Function	**Power Button** Use to connect a momentary push button to the Qseven PWR_BTN# signal.	
Location	J9	
Type	1x2 2mm header	
Pinout	<table><tr><th>Position</th><th>Description</th></tr><tr><td>1</td><td>PWR_BTN#</td></tr><tr><td>2</td><td>Ground</td></tr></table>	

Fan Control

Description

If actively cooling is required; P14 can be used to power and control a fan with J2 selecting the fan voltage.

Connectors & Jumpers

Function	**Fan power/control**
Location	P14
Type	JST B15B-EH-A connector
Pinout	

Pin	Signal	Description
1	FAN_SPEED	Speed signal
2	FAN_PWR	Fan power selected by J2
3	FAN_GND	Filtered digital ground

Function	**Fan power Selection** Selects either +5V or +12V.
Location	J2
Type	1x3 0.100” jumper
Pinout	
Default	floating

Position	Description
1-2	+12V
2-3	+5V
off	Floating

Function	**Fan PWM polarity** Selects either positive or negative
Location	J3
Type	1x2 2mm jumper
Pinout	
Default	floating

Position	Description
off	Positive
on	Negative

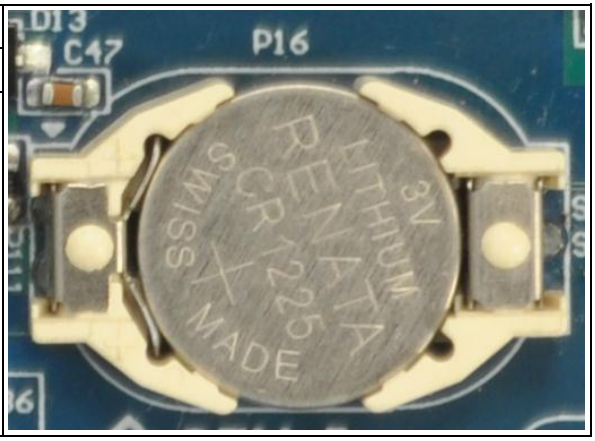
Battery

Description

A CR1225 battery holder is provided at P16. This is a standard 3V battery, which powers the RTC (real time clock) on the CPU module. In most cases, it is not required to preserve critical BIOS settings as most Qseven modules have a flash based BIOS.

Connector & LEDs

Function	**Battery**
Location	P16
Type	CR1225 battery holder



Hardware Installation

1. Ensure all external system power supplies are off.

2. Install the Qseven module into P1. Be sure to follow the manufacturer's direction for proper heatsink/heatspreader installation.

3. Verify all jumper settings from the relevant sections, paying special attention the power selection jumpers

Jumper	Function	Selection	Position
J1	PS/2 power	+5V	2-3
J2	Fan Power	+12V	1-2
J3	Fan PWM polarity	Positive	Off
J4	LVDS panel power	+3.3V	2-3
J5	LVDS backlight enable polarity	positive	Off
J6	LVDS Backlight Power	+12V	1-2
J7	Suspend Selection	S3	1-2
J8	Power Supply On	From Qseven module	2-3

4. Install the necessary cables for the application. At a minimum, this would include:

   a) Power cable, either ATX or +5V/+12V only
   b) Display cable, either VGA or LVDS
   c) Keyboard, either PS/2 or USB
   d) Power button, if applicable

   For the relevant cables, see the Cables & Interconnect section of this manual

5. Stack any necessary PCI-104 modules on top of the Xtreme/SBC PCI-104 via P2, with the appropriate mounting hardware

6. Connect the appropriate I/O peripherals to the interface cables: keyboard, mouse, Ethernet, monitor, etc.

7. Connect the power cable to power supply

8. Turn on the supply.

Software Installation & Configuration

In general, always refer to the Qseven module's manual for proper installation of drivers and configuration software; as well as for appropriate BIOS settings.

The following sections provides some specific notes and hints for successful module integration

Operating System Notes

Linux

General

PS/2: Add kernel option i8042.nopnp to ensure keyboard and mouse PS/2 keyboard and mouse operation
Power down: Add kernel option acpi=force to ensure proper software shutdown.

US15W Specific

Graphics: Intel Driver support for the Poulsbo / GMA500) is limited to several distributions (Redhat, Fedora). See IEGD (Intel Embedded Graphics Driver) website for details
http://edc.intel.com/Software/Downloads/IEGD/#compatibility

Other distributions, such as Linux, are supported through the open source community.

Windows

General

Ethernet:
Install the appropriate Ethernet driver from the Qseven module vendor's website.

US15W Specific

Graphics:
In some cases, the secondary LVDS display will appear washed out, to avoid this ensure the correct version of the IEGD is installed.

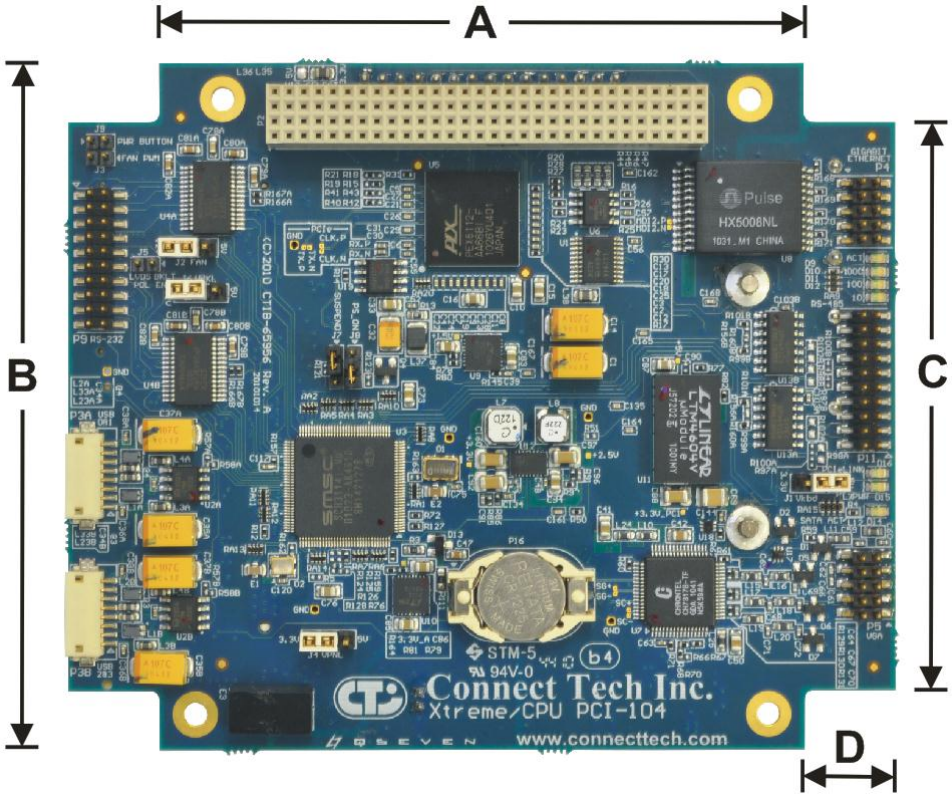
Cables & Interconnect

The following table summarizes the Xtreme/SBC PCI-104's headers and lists the matching cables included with the optional cable kit CKG001.

Location	PCB Connector	Cable Part Number	Drawing Number	Description	PCB End	Interface End
P3A, P3B	Hirose DF13-8P-1.25H(50)	CBG071	CTIC-00182	USB (dual)	Hirose DF13A-8S-1.25C	USB 2.0 Type A female
P4	MLE TSHSM-205-D-06-G-V-L	CBG065	CTIC-00181	GBE	2x5 2mm socket	RJ45 socket, GBE Ethernet
P5	MLE TSHSM-205-D-06-G-V-L	CBG070	CTIC-00180	VGA	2x5 2mm socket	VGA HD15 Female
P6	JST B15B-EH-A(LF)(SN)	CBG074	CTIC-00184	ATX power	JST EHR-15	ATX 20 pin male
P6	JST B15B-EH-A(LF)(SN)	CBG075	CTIC-00185	5V / 12V only power	JST EHR-15	Molex disk drive power male
P7	Hirose DF14-30P-1.25H(25)	CBG076	CTIC-00196	LVDS un-terminated	Hirose DF14-30S-1.25C	N/A
P8	Hirose DF13-8P-1.25H(50)	CBG078	CTIC-00198	Backlight un-terminated	Hirose DF13A-8S-1.25C	N/A
P9, P11	MLE TSHSM-210-D-06-G-V-L	CBG073	CTIC-00183	Serial (dual)	2x10 2mm socket	2 X DB-9 Male
P10A, P10B	Molex 470804005	CBG079	CTIC-00199	SATA	SATA	SATA
P13	Molex 532610671	CBG072	CTIC-00186	Keyboard and Mouse	Molex 51021-0600	2 X 6 Mini-Din
J9	Samtec TMM-102-02-L-S	CBG080	CTIC-00200	Power Button	1x2 2mm socket	Momentary Pushbutton
P14	Hirose DF13-3P-1.25H(20)	CBG081	CTIC-00201	Fan Power	Hirose DF13A-3S-1.25C	N/A

Cable drawings are available upon request (support@connecttech.com)

Dimensions



Dimension	Value
A	3.550” / 90.170mm
B	3.775” / 95.885mm
C	3.125” / 79.375mm
D	0.500” / 12.700mm
Full 3D Dimensions	Download 3D STEP Model File Here

Specifications

Form Factor	PCI-104, (Support up to 4 installed PCI-104 add-on boards)
Display	VGA, LVDS flat panel
Storage	2x SATA (7 pin connector)
Serial Interface	2x RS-232, 2x RS-485
USB	4x USB 2.0
Ethernet	1x Gigabit Ethernet
Dimensions	PC/104 compliant
Temperature	-20ºC to 70ºC (-4ºF to 158ºF) [1]
Power	ATX supply input
Power Consumption	850 mA @ 5V Qseven carrier circuitry only. Does not include module power.
Additional I/O	PS/2 keyboard and mouse
Warranty and Support	Lifetime warranty and free technical support

[1] Temperature range is limited by the SDVO to VGA conversion circuitry.